

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

**AFFYMETRIX, INC.**, a Delaware corporation,

Plaintiff/Counter-Defendant,

V.

**ILLUMINA, INC.**, a Delaware corporation,

**Defendant/Counter-Plaintiff.**

Civil Action No.: 04-901 JJF

**PUBLIC VERSION**

**ILLUMINA, INC.'S MOTION FOR LEAVE TO FILE FIRST AMENDED  
ANSWER AND COUNTERCLAIMS**

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Original filed: January 7, 2006  
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Defendant Illumina, Inc. moves this Court to amend its Answer and Counterclaims to include allegations of inequitable conduct, a violation of the Sherman Act and unclear hands. The grounds for this motion are set forth in the accompanying Memorandum. Copies of the Amended Answer and Counterclaims and a blackline version are attached at Tabs 1 and 2 respectively. A proposed Order is also attached.

Dated: January 7, 2006



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*Attorneys for Illumina, Inc.*

**RULE 7.1.1 CERTIFICATION**

Counsel for Defendant Illumina, Inc. hereby certifies that opposing counsel was contacted in an effort to resolve this issue to no avail.

A handwritten signature in black ink, appearing to read 'RKH', is written over a horizontal line.

Richard K. Herrmann #405  
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**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

**AFFYMETRIX, INC.**, a Delaware corporation,

**Plaintiff/Counter-Defendant,**

**V.**

**ILLUMINA, INC.**, a Delaware corporation,

**Defendant/Counter-Plaintiff.**

Civil Action No.: 04-901 JJF

## ORDER

Defendant Illumina, Inc. has moved for an order granting leave to file an amended answer and counterclaims, and the Court having considered that motion and the opposition thereto,

IT IS HEREBY ORDERED this \_\_\_\_\_ date of \_\_\_\_\_, 2006, that Defendant's Motion for Leave to File First Amended Answer and Counterclaims is GRANTED and Defendant's Amended Answer and Counterclaims is deemed filed and served as of this date.

Joseph J. Farnan, Jr., J.

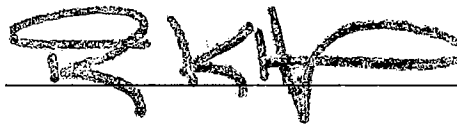
**CERTIFICATE OF SERVICE**

I hereby certify that on the 7<sup>th</sup> day of January, 2006, I caused to be electronically filed the foregoing document, **PUBLIC VERSION OF ILLUMINA, INC.'S MOTION FOR LEAVE TO FILE FIRST AMENDED ANSWER AND COUNTERCLAIMS**, with the Clerk of the Court using CM/ECF which will send notification of such filing to the following:

Jack B. Blumenfeld, Esq.  
Mary Ellen Noreika, Esq  
Morris Nichols Arscht & Tunnell  
1201 Market Street  
Wilmington, DE 19801

Additionally, I hereby certify that on the 7<sup>th</sup> day of January, 2006, the foregoing document was served via facsimile on the following non-registered participants:

Daniel R. Reed, Esq.  
Affymetrix, Inc.  
6550 Vallejo Street, Suite 100  
Emeryville, CA 94608  
510.428.8500  
Fax 510.428.8583

A handwritten signature in black ink, appearing to read 'RKH', is written over a horizontal line.

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Attorneys for Defendant ILLUMINA, INC.

# **TAB 1**

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

<b>AFFYMETRIX, INC., a Delaware Corporation,</b>	)	
<b>Plaintiff/Counter-Defendant,</b>	)	
<b>vs.</b>	)	<b>Civil Action No. 04-901 JJF</b>
<b>ILLUMINA, INC., a Delaware Corporation,</b>	)	<b>JURY TRIAL DEMANDED</b>
<b>Defendant/Counter-Plaintiff.</b>	)	<b>PUBLIC VERSION</b>
	)	
	)	
	)	

**ILLUMINA, INC.'S FIRST AMENDED ANSWER AND COUNTERCLAIMS**

Defendant Illumina, Inc. ("Illumina"), through its undersigned counsel, for its Answer to Affymetrix, Inc.'s ("Affymetrix") Complaint, states as follows:

**NATURE OF THE ACTION**

1. This is an action under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, for infringement by Illumina of patents owned by Affymetrix.

**ANSWER:** Illumina admits that this case purports to be an action for patent infringement, but denies that there is any basis for such an action.

**THE PARTIES**

2. Plaintiff Affymetrix is a Delaware corporation with its principal place of business at 3380 Central Expressway, Santa Clara, California 95051.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 2, and therefore denies them.

3. On information and belief, Defendant Illumina is a corporation incorporated under the laws of the state of Delaware with its principal place of business at 9885 Towne Centre Drive, San Diego, California 92121. On information and belief, Illumina offers for sale and/or sells its infringing products in this Judicial District, among other places.

**ANSWER:** Illumina admits that it is a corporation incorporated under the laws of the State of Delaware with its principal place of business at 9885 Towne Centre Drive, San Diego, California 92121. Illumina denies the remaining allegations of Paragraph 3.

4. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

**ANSWER:** Illumina admits that this case purports to be an action for patent infringement over which this Court has subject matter jurisdiction.

5. This Court has personal jurisdiction over Illumina because Illumina is incorporated in the State of Delaware and/or has purposely availed itself of the privilege of conducting activities within this State and District.

**ANSWER:** Illumina admits that it is subject to personal jurisdiction in this judicial District.

6. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) & (c) and 1400(b).

**ANSWER:** Illumina admits that venue is proper in this judicial District.

### **BACKGROUND**

7. Affymetrix is a pioneer in the DNA microarray industry and develops state-of-the-art technology for acquiring, analyzing, and managing complex genetic information for use in biomedical research, genomics, and clinical diagnostics. Affymetrix's GeneChip® microarrays are the leading commercial application in this field. GeneChip® microarrays consist of many known sequences of DNA attached to a substrate that hybridize to complementary genetic sequences in experimental samples. Researchers use the GeneChip® microarrays to develop new therapeutic drugs, investigate the cause of cancer, AIDS, and other life-threatening diseases, and explore the human genome.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 7, and therefore denies them.

8. In addition to the GeneChip® microarray, Affymetrix has also developed complementary instruments and software for analyzing nucleic acids. These instruments include the GeneChip® Fluidics Station, which is used to wash away unhybridized sample DNA from the GeneChip® microarray



and stain the hybridized DNA with a fluorescent molecule, and the GeneChip® Scanner, which detects where on the array the fluorescent signal is present. Software developed by Affymetrix includes the GeneChip® Analysis Suite, which is used to collect and analyze data generated by the GeneChip® microarrays.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 8, and therefore denies them.

9. Affymetrix made substantial investments in research and development in order to pioneer the commercial market in DNA microarrays and to achieve a position of technological leadership. Affymetrix owns valuable intellectual property rights in DNA microarray technology.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 9, and therefore denies them.

10. Among these intellectual property rights are the following United States patents:
  - A) U.S. Patent No. 5,545,531 (the “‘531 patent”), issued on August 13, 1996, entitled “Methods for making a device for concurrently processing multiple biological chip assays.” A true and correct copy of the ‘531 patent is attached to this Complaint as Exhibit 1 and is incorporated herein by reference.
  - B) U.S. Patent No. 5,795,716 (the “‘716 patent”), issued on August 18, 1998, entitled “Computer-aided visualization and analysis system for sequence evaluation.” A true and correct copy of the ‘716 patent is attached to this Complaint as Exhibit 2 and is incorporated herein by reference.
  - C) U.S. Patent No. 6,355,432 B1 (the “‘432 patent”), issued on March 12, 2002, entitled “Products for detecting nucleic acids.” A true and correct copy of the ‘432 patent is attached to this Complaint as Exhibit 3 and is incorporated herein by reference.
  - D) U.S. Patent No. 6,399,365 B2 (the “‘365 patent”), issued on June 4, 2002, entitled “Bioarray chip reaction apparatus and its manufacture.” A true and correct copy of the ‘365 patent is attached to this Complaint as Exhibit 4 and is incorporated herein by reference.
  - E) U.S. Patent No. 6,607,887 B2 (the “‘887 patent”), issued on August 19, 2003, entitled “Computer-aided visualization and analysis system for sequence evaluation.” A true and correct copy of the ‘887 patent is

attached to this Complaint as Exhibit 5 and is incorporated herein by reference.

- F) U.S. Patent No. 6,646,243 B2 (the “‘243 patent”), issued on November 11, 2003, entitled “Nucleic acid reading and analysis system.” A true and correct copy of the ‘243 patent is attached to this Complaint as Exhibit 6 and is incorporated herein by reference.

**ANSWER:** Illumina admits that on its face U.S. Patent No. 5,545,531 (the “‘531 patent”) indicates that it issued on August 13, 1996, and is entitled “Methods for making a device for concurrently processing multiple biological chip assays.” Illumina admits that Exhibit 1 appears to be a copy of the ‘531 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 5,795,716 (the “‘716 patent”) indicates that it issued on August 18, 1998, and is entitled “Computer-aided visualization and analysis system for sequence evaluation.” Illumina admits that Exhibit 2 appears to be a copy of the ‘716 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,355,432 B1 (the “‘432 patent”) indicates that it issued on March 12, 2002, and is entitled “Products for detecting nucleic acids.” Illumina admits that Exhibit 3 appears to be a copy of the ‘432 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,399,365 B2 (the “‘365 patent”) indicates that it issued on June 4, 2002, and is entitled “Bioarray chip reaction apparatus and its manufacture.” Illumina admits that Exhibit 4 appears to be a copy of the ‘365 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,607,887 B2 (the “‘887 patent”) indicates that it issued on August 19, 2003, and is entitled “Computer-aided visualization and analysis system for sequence evaluation.” Illumina admits that Exhibit 5 appears to be a copy of the ‘887 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,646,243 B2 (the “‘243 patent”) indicates that it issued on November 11, 2003, and is entitled “Nucleic acid reading and analysis system.”

Illumina admits that Exhibit 6 appears to be a copy of the '243 patent, but lacks sufficient information to verify its authenticity. Illumina denies the remaining allegations of Paragraph 10.

11. The '531, '716, '432, '365, '887, and '243 patents were duly issued and are owned by Affymetrix (the '531, '716, '432, '365, '887, and '243 patents are hereinafter collectively referred to as the "Patents-in-Suit"). Affymetrix has the full legal right to sue, enforce, and recover damages for all infringements of the Patents-in-Suit.

**ANSWER:** Illumina denies that the '531, '716, '432, '365, '887, and '243 patents were duly issued. Illumina lacks knowledge or information sufficient to form a belief as to whether the '531, '716, '432, '365, '887, and '243 patents are owned by Affymetrix and whether Affymetrix has the full legal right to sue, enforce, and recover damages for all infringements of the '531, '716, '432, '365, '887, and '243 patents, and therefore denies such allegations.

#### **COUNT 1**

12. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-11 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-11 as if fully set forth herein.

13. Illumina has been and still is infringing the '531 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 13.

14. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '531 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 14.

15. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '531 patent has taken place with full knowledge of the '531 patent and has been intentional, deliberate, and willful. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '531 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 15.

**COUNT 2**

16. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

17. Illumina has been and still is infringing the '716 patent by making, using, offering for sale, and/or selling products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 17.

18. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '716 patent by supplying the BeadArray technology and associated software and instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 18.

19. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '716 patent has taken place with full knowledge of the '716 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 19.

20. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '716 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 20.

**COUNT 3**

21. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

22. Illumina has been and still is infringing the '432 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 22.

23. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '432 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 23.

24. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '432 patent has taken place with full knowledge of the '432 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 24.

25. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe to '432 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 25.

**COUNT 4**

26. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

27. Illumina has been and still is infringing the '365 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 27.

28. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '365 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 28.

29. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '365 patent has taken place with full knowledge of the '365 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 29.

30. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '365 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 30.

**COUNT 5**

31. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

32. Illumina has been and still is infringing the '887 patent by making, using, offering for sale, and/or selling products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 32.

33. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '887 patent by supplying the BeadArray technology and associated software and instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 33.

34. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '887 patent has taken place with full knowledge of the '887 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 34.

35. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '887 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 35.

#### **COUNT 6**

36. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

37. Illumina has been and still is infringing the '243 patent by making, using offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 37.

38. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '243 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 38.

39. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '243 patent has taken place with full knowledge of the '243 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 39.

40. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '243 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 40.

### **AFFIRMATIVE DEFENSES**

Illumina alleges and asserts the following defenses in response to the allegations of Affymetrix's Complaint, undertaking the burden of proof only as to those defenses deemed affirmative defenses by law, regardless of how such defenses are denominated herein.

#### **First Affirmative Defense (Non-Infringement)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that it does not infringe, directly, contributorily, or by inducement any valid claim of the '531, '716, '432, '365, '887, and '243 patents.



**Second Affirmative Defense (Prosecution History Estoppel)**

To the extent Affymetrix attempts to assert infringement under the doctrine of equivalents, Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that arguments and amendments contained in the prosecution history will estop or bar any claims for alleged infringement.

**Third Affirmative Defense (Invalidity)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that one or more of the claims of the '531, '716, '432, '365, '887, and '243 patents are invalid for failure to meet the requirements of the Patent Laws of the United States, including one or more of 35 U.S.C. §§ 102, 103, and 112.

**Fourth Affirmative Defense (Laches/Prosecution Laches/Estoppel)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for alleged infringement are barred or limited by the doctrines of laches, prosecution laches and/or equitable estoppel.

**Fifth Affirmative Defense (Failure To Mark)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for damages for alleged infringement are barred or limited due to failure to allege compliance with (and failure to comply with) the requirements of 35 U.S.C. § 287.

**Sixth Affirmative Defense (Adequate Remedy At Law)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for injunctive relief are barred in light of the fact that Affymetrix has an adequate remedy at law.

**Seventh Affirmative Defense (Inequitable Conduct)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that the '531, '716, '432, '365, '887, and '243 patents are unenforceable because of inequitable conduct committed by the patent applicants during the prosecution of these patents.

**COUNTERCLAIMS**

Defendant Illumina, through the undersigned counsel, for its Counterclaims, states as follows:

**The Parties**

1. Illumina, Inc. ("Illumina") is a corporation organized and existing under the laws of the State of Delaware, having a principal place of business at 9885 Towne Centre Drive, San Diego, California 92121.

2. On information and belief, Affymetrix, Inc. ("Affymetrix") is a corporation organized and existing under the laws of the State of Delaware, having a principal place of business at 3380 Central Expressway, Santa Clara, California 95051.

**Jurisdiction and Venue**

3. This Court has jurisdiction over the subject matter of these Counterclaims under 28 U.S.C. §§ 1331, 1367, 1338(a), 2201, and 2202.

4. This Court has personal jurisdiction over Affymetrix as Affymetrix is incorporated in the State of Delaware and/or has purposely availed itself of the privilege of conducting activities within this State and District.

5. Venue is proper under 28 U.S.C. §§ 1391(b), (c) and 1400(b).

**Count I**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 5,545,531**

6. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

7. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 5,545,531 (the “‘531 patent”) is invalid and not infringed by Illumina.

8. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘531 patent, and whether the ‘531 patent is invalid.

9. Illumina does not infringe, and has never infringed, any valid claim of the ‘531 patent either directly, contributorily, or by inducement.

10. The ‘531 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

11. The ‘531 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

12. More particularly, Affymetrix REDACTED  
had knowledge of, *inter alia*, International Patent Application, WO 93/17126. This ‘126 patent application published on September 2, 1993, more than one year before the earliest filing date for the ‘531 patent, and is material prior art to the ‘531 patent.

13. **REDACTED**

**REDACTED**

**Count II**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 5,795,716**

14. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

15. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 5,795,716 (the “‘716 patent”) is invalid and not infringed by Illumina.

16. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘716 patent, and whether the ‘716 patent is invalid.

17. Illumina does not infringe, and has never infringed, any valid claim of the ‘716 patent either directly, contributorily, or by inducement.

18. The ‘716 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

19. The ‘716 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

20.

**REDACTED**

Dr. Lipshutz attended conferences at which he heard Dr. Mirzabekov present results from experiments he was running, including a conference in November 1991 in Moscow, Russia.

**REDACTED**

A prior art written summary of the Moscow conference was also prepared and published, **REDACTED**

.

21.

**REDACTED**

22. Dr. Mirzabekov used a computer to perform his experiments,

**REDACTED**

In this summary, it specifically notes that Mirzabekov's presentation referred to the fact that "[p]rototype equipment for quantitative fluorescent measuring of hybridization has been constructed. It consists of a fluorescent microscope, CCD-camera, thermostatted chamber for hybridization *and a computer with relevant programs for image analysis and sequence reconstruction operations.*"

23.

**REDACTED**

24. Dr. Lipshutz and Affymetrix withheld material prior art, *inter alia*, including the summary of the 1991 Moscow conference, REDACTED

and other publications from Dr. Mirzabekov's group from the United States Patent and Trademark Office during the prosecution of the patent application that led to the '716 patent. This failure to cite material prior art to the United States Patent and Trademark Office was undertaken with an intent to deceive the Patent Office.

**Count III**  
**Declaratory Judgment of Non-Infringement, Invalidity, and Unenforceability of**  
**U.S. Patent No. 6,355,432**

25. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

26. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,355,432 (the "'432 patent") is invalid, unenforceable, and not infringed by Illumina.

27. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the '432 patent, and whether the '432 patent is invalid.

28. Illumina does not infringe, and has never infringed, any valid claim of the '432 patent either directly, contributorily, or by inducement.

29. The '432 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

30. The '432 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

31. More particularly, Affymetrix and one or more of the inventors and prosecution counsel of the '432 patent knew of the prior art work of Radoje Drmanac and Radomir Crkvenjakov relating to use of encoded beads used for hybridization experiments, the subject matter of the '432 patent claims. Drs. Drmanac and Crkvenjakov presented their encoded bead invention at several conferences in the United States, starting in the fall of 1989, and published several posters and descriptions relating to this work. Upon information and belief, Dr. Fodor and/or others associated with Affymetrix (or its predecessor-in-interest, Affymax) attended these conferences at which Drs. Drmanac and Crkvenjakov presented, and learned of their prior art work through these presentations. Dr. Fodor and his co-inventors on the '432 patent did not include any written description relating to encoded beads in a patent application until after hearing Drs. Drmanac and Crkvenjakov present on this topic.

32. Affymetrix and Dr. Fodor did not disclose this prior art to the United States Patent and Trademark Office or that they derived the invention claimed in the '432 patent from Drs. Drmanac and Crkvenjakov. This failure to cite material prior art to the United States Patent and Trademark Office was undertaken with an intent to deceive.

33. The '432 patent is also unenforceable because Affymetrix failed to disclose material documents arising from litigations involving similar subject matter in connection with the prosecution of the application that issued as the '432 patent. More

particularly, the subject matter of the '432 patent was involved in the litigations concerning the '305, '934, and '992 patents; and therefore, the discovery, pleadings, and judicial orders arising from these litigations were material to the patentability of the '432 patent. The applicants for the '432 patent were aware that the discovery, pleadings, and judicial orders arising from the litigations involving the '305, '934, and '992 patents were material to the patentability of the '432 patent, and yet intentionally failed to disclose to the United States Patent and Trademark Office the material discovery, pleadings, and judicial orders arising from these litigations.

**Count IV**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 6,399,365**

34. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

35. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,399,365 (the “‘365 patent”) is invalid and not infringed by Illumina.

36. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘365 patent, and whether the ‘365 patent is invalid.

37. Illumina does not infringe, and has never infringed, any valid claim of the ‘365 patent either directly, contributorily, or by inducement.

38. The ‘365 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

39. The ‘365 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.



40. More particularly, Affymetrix and its patent counsel had knowledge of, *inter alia*, United Kingdom Patent Application GB 2129551A, which published on May 16, 1984, more than one year before the earliest filing date of the '365 patent and is prior art to the claims of the '365 patent. Specifically, the Mochida '551 patent was cited to Affymetrix during prosecution of United States Patent Application No. 09/585,659, in an office action dated April 6, 2001. It was specifically noted by the Patent Examiner in this April 2001 office action that the Mochida patent taught the use of bar codes in the context of microtiter plates or other biological sample holders.

41. Affymetrix acknowledged its knowledge of the Mochida patent and the use of bar codes in the prior art in an Amendment of the '659 patent application dated September 17, 2001. In this Amendment, Affymetrix stated "Examiner mentions that bar codes and nucleic acids were known in the art to be encoding systems and applicants agree."

42. Affymetrix and the inventors of the '365 patent did not disclose the Mochida patent to the United States Patent and Trademark Office during the prosecution that led to the '365 patent. Furthermore, the Patent Office was not informed during prosecution that Affymetrix believed "bar codes and nucleic acids were known in the art" before the earliest filing date of the '659 patent application, which predates by several years the earliest filing date of the '365 patent.

43. The claims of the '365 patent were issued on January 26, 2002, after Affymetrix became aware of the Mochida patent and its relevance. In the Examiner's Statement of Reasons for Allowance of the claims of the '365 patent, he noted that "there is no prior art that teach or suggest a package for hybridization comprising an optically transparent chip comprising an array of probes comprising biological polymers immobilized on surface with a housing and a

bar code.” The Mochida patent expressly teaches all of these elements. The Examiner went on to explain that “[t]he closest prior art is Merkh et al (US 5,281,540) who teach a biological sample analyzer for analyzing a reaction cartridge that has a bar code but they do not teach or suggest a probe array with density exceeding 100 different biopolymers per cm<sup>2</sup> nor an optically transparent chip.” The Mochida patent is closer to the claims of the ‘365 patent than this cited Merkh patent; indeed, the Mochida patent invalidates the ‘365 patent claims.

44. Affymetrix and the inventors of the ‘365 patent withheld the Mochida patent and their knowledge of the prior art use of bar codes on microtiter plates and biological sample holders from the United States Patent and Trademark Office with an intent to deceive.

**Count V**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 6,607,887**

45. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 and 14-24 as if fully set forth herein.

46. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,607,887 (the “‘887 patent”) is invalid and not infringed by Illumina.

47. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘887 patent, and whether the ‘887 patent is invalid.

48. Illumina does not infringe, and has never infringed, any valid claim of the ‘887 patent either directly, contributorily, or by inducement.

49. The ‘887 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

50. The '887 patent is unenforceable because Affymetrix failed to disclose prior art and material documents arising from litigations involving similar subject matter in connection with the prosecution of the application that issued as the '887 patent.

51. More particularly, the subject matter of the '887 patent was involved in litigation concerning the '716 patent; and therefore, the discovery, pleadings, and judicial orders arising from such litigation were material to the patentability of the '887 patent.

52. The applicants for the '887 patent were aware that the discovery, pleadings, and judicial orders arising from litigation involving the '716 patent were material to the patentability of the '887 patent, and yet intentionally failed to disclose to the United States Patent and Trademark Office the material discovery, pleadings, and judicial orders arising from such litigation.

53. The applicants for the '887 patent failed to disclose to the United States Patent Office that the '716 patent was ever involved in a litigation in connection with the prosecution of the application that issued as the '887 patent.

**Count VI**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 6,646,243**

54. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

55. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,646,243 (the "'243 patent'") is invalid and not infringed by Illumina.

56. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the '243 patent, and whether the '243 patent is invalid.

57. Illumina does not infringe, and has never infringed, any valid claim of the '243 patent either directly, contributorily, or by inducement.

58. The '243 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

59. The '243 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

60. More particularly, Affymetrix and one or more of the inventors of the '243 patent had knowledge of the prior work of Radoje Drmanac and Radomir Crkvenjakov relating to use of a "sequencing chip" using a plurality of beads attached to a substrate to run hybridization experiments, the subject matter of the '243 patent claims. Drs. Drmanac and Crkvenjakov presented their sequencing chip invention at several conferences in the United States, starting in the fall of 1989, and published abstracts and posters. Upon information and belief, Dr. Fodor and/or others associated with Affymetrix (or its predecessor-in-interest, Affymax) attended these conferences at which Drs. Drmanac and Crkvenjakov presented, and learned of the sequencing chip invention through these presentations. Dr. Fodor and his co-inventors on the '243 patent only included disclosure relating to encoded beads in a patent application after learning of Drs. Drmanac and Crkvenjakov work in this area.

61. Affymetrix and Dr. Fodor did not disclose to the United States Patent Office that they derived the invention claimed in the '243 patent from Drs. Drmanac and Crkvenjakov. This failure to cite material prior art to the United States Patent Office was undertaken with an intent to deceive the Patent Office.

62. The '243 patent is unenforceable because Affymetrix also failed to disclose to the United States Patent Office material documents arising from litigations involving similar subject matter as that claimed in the '243 patent.

63. More particularly, the applicants for the '243 patent failed to disclose to the United States Patent Office material documents, including discovery, pleadings, and judicial orders arising from litigations involving the '992, '934, and '305 patents, in connection with the prosecution of the application that issued as the '243 patent.

64. The subject matter of the '243 patent was involved in the litigations concerning the '305, '934, and '992 patents; and therefore, the discovery, pleadings, and judicial orders arising from these litigations were material to the patentability of the '243 patent.

65. The applicants for the '243 patent were aware that the discovery, pleadings, and judicial orders arising from the litigations involving the '305, '934, and '992 patents were material to the patentability of the '243 patent, and yet intentionally failed to disclose to the United States Patent Office the material discovery, pleadings, and judicial orders arising from these litigations.

66. The applicants for the '243 patent failed to disclose to the United States Patent Office that the '934 patent was ever involved in a litigation in connection with the prosecution of the application that issued as the '243 patent.

**Count VII**  
**Violation of Section 2 of Sherman Act,**

67. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-66 as if fully set forth herein.

68. Affymetrix has attempted to enforce the '531, '716, '432, '365, '887, and '243 patents against Illumina in this lawsuit.

69. Affymetrix obtained at least one claim of each of the '531, '716, '432, '365, '887, and '243 patents as a result of fraud committed against the United States Patent Office, as discussed in Counterclaim Counts I-VI above. The United States Patent and Trademark Office relied on the Affymetrix' inventors and agents to comply with their duty of candor, and the patents-in-suit would not have issued but for their failure to comply with this duty.

70. **REDACTED**

71. All of these actions have helped Affymetrix attain and maintain a monopoly or near-monopoly share of the market for DNA microarray products that are sold, for example for genotyping and/or gene expression applications, in the United States and the world. Affymetrix' attempted enforcement of the patents against Illumina threatens to lessen competition and/or raise prices in the marketplace for DNA microarrays. As interpreted by Affymetrix, the patents-in-suit, individually or together, would give Affymetrix the power to exclude competition and raise prices in the DNA microarray market. Affymetrix has controlled and controls a vast majority of the DNA microarray market in the United States and the world, with a market share as high as REDACTED, such that its efforts to monopolize this market have succeeded and/or are dangerously close to success.

72. Affymetrix has maintained or attempted to maintain its monopoly power by exploiting barriers to entry and by engaging in anticompetitive conduct, all with a desire to eliminate Illumina and other competitors from the marketplace. For example, Affymetrix has

attempted to maintain its monopoly power through exclusionary and anticompetitive pricing practices

**REDACTED**

Affymetrix has also attempted to maintain its monopoly power through means such as making false and misleading statements to customers in the DNA microarray market regarding Illumina and its products or services, and through entering into exclusionary arrangements with competitors of Illumina so as to ultimately reduce competition in the DNA microarray market.

73. Affymetrix has undertaken these actions with an intent to monopolize the DNA microarray market.

74. Illumina and the DNA microarray market have been damaged by Affymetrix' unlawful acts. Illumina has lost many sales and sales opportunities because of Affymetrix' assertion of its unenforceable patents in this lawsuit and willful maintenance of its monopoly power through exploitation of barriers to entry and exclusionary conduct.

**Count VIII**  
**Unfair Competition Under Cal. Bus. & Prof. Code §§ 17200 et. seq.**

75. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-74 as if fully set forth herein.

76. Illumina is engaged in the business of manufacturing and selling the Sentrix Array Matrix, the Sentrix BeadChip, assay reagents, and related instruments and software for researchers in the life sciences and pharmaceutical industries.

77. Affymetrix is engaged in the business of manufacturing and selling GeneChip arrays, assay reagents, and related instruments and software for pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies as well as academic, government and other non-profit research industries, in direct competition with Illumina.

78. On information and belief, Affymetrix has made false and misleading statements to Illumina's customers and potential customers regarding Illumina's goods and services, including false statements that Illumina's products are inferior to Affymetrix's and will become technically obsolete in the near future. Furthermore, for the reasons discussed in Paragraphs 67 to 74 above, Affymetrix has willfully and unlawfully maintained and/or attempted to maintain monopoly power in violation of Sec. §§ 17200 et. seq.

79. As a direct and proximate cause of the conduct alleged in paragraph 78, Illumina has suffered, and will continue to suffer, monetary and irreparable damages, including injury to Illumina's good will and reputation in the marketplace. Illumina has no adequate remedy at law for the irreparable damage that they have suffered and continue to suffer as a result of Affymetrix' unlawful conduct.

80. Affymetrix's false and misleading statements and exclusionary conduct as alleged herein offend public policy as they are deceptive, unlawful, unfair, unscrupulous, and substantially injurious to Illumina and to its customers, and thus constitute unfair competition and unfair business practices in violation of the California Business & Professions Code §§ 17200 et seq. that prohibits unfair, unlawful and deceptive business acts.

81. Under California Business & Professions Code § 17202, Illumina is entitled to an order enjoining Affymetrix from making any false, misleading, defamatory, unfair or malicious statement pertaining to Illumina or its products and services and enjoining the exclusionary conduct alleged in paragraph 78 above.

**Count IX**  
**Intentional Interference With Actual and Prospective Economic Advantage**

82. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-81 as if fully set forth herein.



83. Illumina has had reasonable and valuable expectations of actual and prospective economic advantage through business relationships with both existing and potential customers.

84. On information and belief, Affymetrix is aware of the existence of those business relationships with existing and potential customers.

85. On information and belief, Affymetrix has engaged in efforts to interfere and disrupt Illumina's business relationships with those existing and potential customers.

**REDACTED**

Affymetrix has also made false and misleading statements to existing or potential customers of Illumina in an effort to interfere with Illumina's relationships with these customers.

86. On information and belief, as a direct and proximate result of Affymetrix's conduct alleged herein, Illumina has been prevented from obtaining economic advantage through business relationships with existing and new customers that would have yielded substantial Illumina substantial profit.

87. On information and belief, Affymetrix acted knowingly, willfully and maliciously with the intent to injure Illumina, and therefore, Illumina is entitled to recover compensatory, exemplary and punitive damages.

**Count X -- Unclean Hands**

88. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-87 as if fully set forth herein.

89. Based on Affymetrix' efforts to obtain patents through fraud, maintain these patents through the suppression of witnesses and documents that would prove the unenforceability and invalidity of these patents, and engage in deceptive dealing by, *inter alia*,

obtaining Illumina confidential information, Affymetrix has unclean hands and should not, in equity, be permitted to enforce its patents against Illumina.

WHEREFORE, Illumina prays for the entry of judgment as follows:

A. Declaring that Illumina does not infringe, either directly, contributorily, or by inducement, the '531, '716, '432, '365, '887, and '243 patents;

B. Declaring that the claims of the '531, '716, '432, '365, '887, and '243 patents are invalid;

C. Declaring that the claims of the '531, '716, '432, '365, '887, and '243 patents are unenforceable;

D. Declaring that Affymetrix's claims are limited and/or barred by the doctrines of laches, prosecution laches and/or estoppel;

E. Awarding Illumina its reasonable costs and attorneys fees pursuant to 28 U.S.C. § 285;

F. Enjoining Affymetrix from making any further false, misleading, defamatory, unfair or malicious statements regarding Illumina or Illumina's goods and services;

G. Granting Illumina an award of compensatory, exemplary, treble and punitive damages for Affymetrix's antitrust violations, unfair competition and tortious interference with contract; and

H. Granting Illumina such other and further relief as justice and equity may require.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Illumina hereby demands a trial by jury on all issues so triable.

Dated: January 7, 2006



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*Attorneys for Illumina, Inc.*

**TAB 2**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

<u>AFFYMETRIX, INC., a Delaware</u>	)	
<u>Corporation,</u>	)	
	)	
Plaintiff/Counter-Defendant,	)	Civil Action No. 04-901 JJF
	)	
vs.	)	JURY TRIAL DEMANDED
	)	<u>PUBLIC VERSION</u>
<u>ILLUMINA, INC., a Delaware</u>	)	
<u>Corporation,</u>	)	
	)	
Defendant/Counter-Plaintiff.	)	

**ILLUMINA, INC.'S FIRST AMENDED ANSWER AND COUNTERCLAIMS**

Defendant Illumina, Inc. ("Illumina"), through its undersigned counsel, for its Answer to Affymetrix, Inc.'s ("Affymetrix") Complaint, states as follows:

**NATURE OF THE ACTION**

1. This is an action under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, for infringement by Illumina of patents owned by Affymetrix.

**ANSWER:** Illumina admits that this case purports to be an action for patent infringement, but denies that there is any basis for such an action.

**THE PARTIES**

2. Plaintiff Affymetrix is a Delaware corporation with its principal place of business at 3380 Central Expressway, Santa Clara, California 95051.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 2, and therefore denies them.

3. On information and belief, Defendant Illumina is a corporation incorporated under the laws of the state of Delaware with its principal place of business at 9885 Towne Centre Drive, San Diego, California 92121. On information and belief, Illumina offers for sale and/or sells its infringing products in this Judicial District, among other places.

**ANSWER:** Illumina admits that it is a corporation incorporated under the laws of the State of Delaware with its principal place of business at 9885 Towne Centre Drive, San Diego, California 92121. Illumina denies the remaining allegations of Paragraph 3.

4. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

**ANSWER:** Illumina admits that this case purports to be an action for patent infringement over which this Court has subject matter jurisdiction.

5. This Court has personal jurisdiction over Illumina because Illumina is incorporated in the State of Delaware and/or has purposely availed itself of the privilege of conducting activities within this State and District.

**ANSWER:** Illumina admits that it is subject to personal jurisdiction in this judicial District.

6. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) & (c) and 1400(b).

**ANSWER:** Illumina admits that venue is proper in this judicial District.

#### **BACKGROUND**

7. Affymetrix is a pioneer in the DNA microarray industry and develops state-of-the-art technology for acquiring, analyzing, and managing complex genetic information for use in biomedical research, genomics, and clinical diagnostics. Affymetrix's GeneChip® microarrays are the leading commercial application in this field. GeneChip® microarrays consist of many known sequences of DNA attached to a substrate that hybridize to complementary genetic sequences in experimental samples. Researchers use the GeneChip® microarrays to develop new therapeutic drugs, investigate the cause of cancer, AIDS, and other life-threatening diseases, and explore the human genome.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 7, and therefore denies them.

8. In addition to the GeneChip® microarray, Affymetrix has also developed complementary instruments and software for analyzing nucleic acids. These instruments include the GeneChip® Fluidics Station, which is used to wash away unhybridized sample DNA from the GeneChip® microarray

and stain the hybridized DNA with a fluorescent molecule, and the GeneChip® Scanner, which detects where on the array the fluorescent signal is present. Software developed by Affymetrix includes the GeneChip® Analysis Suite, which is used to collect and analyze data generated by the GeneChip® microarrays.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief

as to the truth of the allegations of Paragraph 8, and therefore denies them.

9. Affymetrix made substantial investments in research and development in order to pioneer the commercial market in DNA microarrays and to achieve a position of technological leadership. Affymetrix owns valuable intellectual property rights in DNA microarray technology.

**ANSWER:** Illumina lacks knowledge or information sufficient to form a belief

as to the truth of the allegations of Paragraph 9, and therefore denies them.

10. Among these intellectual property rights are the following United States patents:
  - A) U.S. Patent No. 5,545,531 (the “‘531 patent”), issued on August 13, 1996, entitled “Methods for making a device for concurrently processing multiple biological chip assays.” A true and correct copy of the ‘531 patent is attached to this Complaint as Exhibit 1 and is incorporated herein by reference.
  - B) U.S. Patent No. 5,795,716 (the “‘716 patent”), issued on August 18, 1998, entitled “Computer-aided visualization and analysis system for sequence evaluation.” A true and correct copy of the ‘716 patent is attached to this Complaint as Exhibit 2 and is incorporated herein by reference.
  - C) U.S. Patent No. 6,355,432 B1 (the “‘432 patent”), issued on March 12, 2002, entitled “Products for detecting nucleic acids.” A true and correct copy of the ‘432 patent is attached to this Complaint as Exhibit 3 and is incorporated herein by reference.
  - D) U.S. Patent No. 6,399,365 B2 (the “‘365 patent”), issued on June 4, 2002, entitled “Bioarray chip reaction apparatus and its manufacture.” A true and correct copy of the ‘365 patent is attached to this Complaint as Exhibit 4 and is incorporated herein by reference.
  - E) U.S. Patent No. 6,607,887 B2 (the “‘887 patent”), issued on August 19, 2003, entitled “Computer-aided visualization and analysis system for sequence evaluation.” A true and correct copy of the ‘887 patent is

attached to this Complaint as Exhibit 5 and is incorporated herein by reference.

- F) U.S. Patent No. 6,646,243 B2 (the “‘243 patent”), issued on November 11, 2003, entitled “Nucleic acid reading and analysis system.” A true and correct copy of the ‘243 patent is attached to this Complaint as Exhibit 6 and is incorporated herein by reference.

**ANSWER:** Illumina admits that on its face U.S. Patent No. 5,545,531 (the “‘531 patent”) indicates that it issued on August 13, 1996, and is entitled “Methods for making a device for concurrently processing multiple biological chip assays.” Illumina admits that Exhibit 1 appears to be a copy of the ‘531 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 5,795,716 (the “‘716 patent”) indicates that it issued on August 18, 1998, and is entitled “Computer-aided visualization and analysis system for sequence evaluation.” Illumina admits that Exhibit 2 appears to be a copy of the ‘716 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,355,432 B1 (the “‘432 patent”) indicates that it issued on March 12, 2002, and is entitled “Products for detecting nucleic acids.” Illumina admits that Exhibit 3 appears to be a copy of the ‘432 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,399,365 B2 (the “‘365 patent”) indicates that it issued on June 4, 2002, and is entitled “Bioarray chip reaction apparatus and its manufacture.” Illumina admits that Exhibit 4 appears to be a copy of the ‘365 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,607,887 B2 (the “‘887 patent”) indicates that it issued on August 19, 2003, and is entitled “Computer-aided visualization and analysis system for sequence evaluation.” Illumina admits that Exhibit 5 appears to be a copy of the ‘887 patent, but lacks sufficient information to verify its authenticity. Illumina admits that on its face U.S. Patent No. 6,646,243 B2 (the “‘243 patent”) indicates that it issued on November 11, 2003, and is entitled “Nucleic acid reading and analysis system.”



Illumina admits that Exhibit 6 appears to be a copy of the '243 patent, but lacks sufficient information to verify its authenticity. Illumina denies the remaining allegations of Paragraph 10.

11. The '531, '716, '432, '365, '887, and '243 patents were duly issued and are owned by Affymetrix (the '531, '716, '432, '365, '887, and '243 patents are hereinafter collectively referred to as the "Patents-in-Suit"). Affymetrix has the full legal right to sue, enforce, and recover damages for all infringements of the Patents-in-Suit.

**ANSWER:** Illumina denies that the '531, '716, '432, '365, '887, and '243 patents were duly issued. Illumina lacks knowledge or information sufficient to form a belief as to whether the '531, '716, '432, '365, '887, and '243 patents are owned by Affymetrix and whether Affymetrix has the full legal right to sue, enforce, and recover damages for all infringements of the '531, '716, '432, '365, '887, and '243 patents, and therefore denies such allegations.

#### **COUNT 1**

12. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-11 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-11 as if fully set forth herein.

13. Illumina has been and still is infringing the '531 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 13.

14. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '531 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 14.

15. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '531 patent has taken place with full knowledge of the '531 patent and has been intentional, deliberate, and willful. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '531 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 15.

**COUNT 2**

16. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

17. Illumina has been and still is infringing the '716 patent by making, using, offering for sale, and/or selling products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 17.

18. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '716 patent by supplying the BeadArray technology and associated software and instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 18.

19. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '716 patent has taken place with full knowledge of the '716 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 19.

20. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '716 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 20.

**COUNT 3**

21. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

22. Illumina has been and still is infringing the '432 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 22.

23. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '432 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 23.

24. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '432 patent has taken place with full knowledge of the '432 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 24.

25. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe to '432 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 25.

**COUNT 4**

26. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

27. Illumina has been and still is infringing the '365 patent by making, using, offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 27.

28. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '365 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 28.

29. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '365 patent has taken place with full knowledge of the '365 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 29.

30. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '365 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 30.

**COUNT 5**

31. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

32. Illumina has been and still is infringing the '887 patent by making, using, offering for sale, and/or selling products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated software and instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 32.

33. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '887 patent by supplying the BeadArray technology and associated software and instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 33.

34. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '887 patent has taken place with full knowledge of the '887 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 34.

35. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '887 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 35.

**COUNT 6**

36. Affymetrix realleges and incorporates herein by reference the allegations stated in paragraphs 1-9 of this Complaint.

**ANSWER:** Illumina repeats and realleges its answers to Paragraphs 1-9 as if fully set forth herein.

37. Illumina has been and still is infringing the '243 patent by making, using offering for sale, and/or selling products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip.

**ANSWER:** Illumina admits that it makes, uses, offers for sale, and sells products and associated instrumentation under the name BeadArray™ technology, including, but not limited to, the Sentrix® Fiber-Optic Array Matrix and the Sentrix® BeadChip. Illumina denies the remaining allegations of Paragraph 37.

38. Illumina also has been and is contributorily infringing and/or actively inducing others to infringe the '243 patent by supplying the BeadArray technology and associated instrumentation.

**ANSWER:** Illumina denies the allegations of Paragraph 38.

39. On information and belief, Illumina's infringement, contributory infringement, and/or active inducement of others' infringement of the '243 patent has taken place with full knowledge of the '243 patent and has been intentional, deliberate, and willful.

**ANSWER:** Illumina denies the allegations of Paragraph 39.

40. On information and belief, Illumina will continue to infringe, contributorily infringe, and/or actively induce others to infringe the '243 patent unless and until it is enjoined by this Court.

**ANSWER:** Illumina denies the allegations of Paragraph 40.

#### **AFFIRMATIVE DEFENSES**

Illumina alleges and asserts the following defenses in response to the allegations of Affymetrix's Complaint, undertaking the burden of proof only as to those defenses deemed affirmative defenses by law, regardless of how such defenses are denominated herein.

##### **First Affirmative Defense (Non-Infringement)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that it does not infringe, directly, contributorily, or by inducement any valid claim of the '531, '716, '432, '365, '887, and '243 patents.

**Second Affirmative Defense (Prosecution History Estoppel)**

To the extent Affymetrix attempts to assert infringement under the doctrine of equivalents, Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that arguments and amendments contained in the prosecution history will estop or bar any claims for alleged infringement.

**Third Affirmative Defense (Invalidity)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that one or more of the claims of the '531, '716, '432, '365, '887, and '243 patents are invalid for failure to meet the requirements of the Patent Laws of the United States, including one or more of 35 U.S.C. §§ 102, 103, and 112.

**Fourth Affirmative Defense (Laches/Prosecution Laches/Estoppel)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for alleged infringement are barred or limited by the doctrines of laches, prosecution laches and/or equitable estoppel.

**Fifth Affirmative Defense (Failure To Mark)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for damages for alleged infringement are barred or limited due to failure to allege compliance with (and failure to comply with) the requirements of 35 U.S.C. § 287.

**Sixth Affirmative Defense (Adequate Remedy At Law)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that any claims for injunctive relief are barred in light of the fact that Affymetrix has an adequate remedy at law.

**Seventh Affirmative Defense (Inequitable Conduct)**

Illumina believes that, after a reasonable opportunity for further investigation or discovery, it will be able to demonstrate that the '531, '716, '432, '365, '887, and '243 patents are unenforceable because of inequitable conduct committed by the patent applicants during the prosecution of these patents.

**COUNTERCLAIMS**

Defendant Illumina, through the undersigned counsel, for its Counterclaims, states as follows:

**The Parties**

1. Illumina, Inc. ("Illumina") is a corporation organized and existing under the laws of the State of Delaware, having a principal place of business at 9885 Towne Centre Drive, San Diego, California 92121.

2. On information and belief, Affymetrix, Inc. ("Affymetrix") is a corporation organized and existing under the laws of the State of Delaware, having a principal place of business at 3380 Central Expressway, Santa Clara, California 95051.

**Jurisdiction and Venue**

3. This Court has jurisdiction over the subject matter of these Counterclaims under 28 U.S.C. §§ 1331, 1367, 1338(a), 2201, and 2202.

4. This Court has personal jurisdiction over Affymetrix as Affymetrix is incorporated in the State of Delaware and/or has purposely availed itself of the privilege of conducting activities within this State and District.

5. Venue is proper under 28 U.S.C. §§ 1391(b), (c) and 1400(b).



**Count I**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 5,545,531**

6. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

7. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 5,545,531 (the “‘531 patent”) is invalid and not infringed by Illumina.

8. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘531 patent, and whether the ‘531 patent is invalid.

9. Illumina does not infringe, and has never infringed, any valid claim of the ‘531 patent either directly, contributorily, or by inducement.

10. The ‘531 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

11. The ‘531 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

12. More particularly, Affymetrix REDACTED  
had knowledge of, *inter alia*, International Patent Application, WO 93/17126. This ‘126 patent application published on September 2, 1993, more than one year before the earliest filing date for the ‘531 patent, and is material prior art to the ‘531 patent.

13. **REDACTED**

**REDACTED**

**Count II**

**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of  
U.S. Patent No. 5,795,716**

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14. Illumina repeats and realleges the allegations in counterclaim paragraphs

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1-5 as if fully set forth herein.

15. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 5,795,716 (the “‘716 patent”) is invalid and not infringed by Illumina.

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16. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘716 patent, and whether the ‘716 patent is invalid.

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17. Illumina does not infringe, and has never infringed, any valid claim of the ‘716 patent either directly, contributorily, or by inducement.

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18. The ‘716 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

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19. The ‘716 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

20. \_\_\_\_\_

**REDACTED**

Dr. Lipshutz attended conferences at which he heard Dr. Mirzabekov present results from experiments he was running, including a conference in November 1991 in Moscow, Russia.

**REDACTED**

A prior art written summary of the Moscow conference was also prepared and published.

**REDACTED**

21. \_\_\_\_\_

**REDACTED**

22. Dr. Mirzabekov used a computer to perform his experiments.

**REDACTED**

In this summary, it specifically notes that Mirzabekov's presentation referred to the fact that "[p]rototype equipment for quantitative fluorescent measuring of hybridization has been constructed. It consists of a fluorescent microscope, CCD-camera, thermostatted chamber for hybridization *and a computer with relevant programs for image analysis and sequence reconstruction operations.*"

23. \_\_\_\_\_

**REDACTED**

24. Dr. Lipshutz and Affymetrix withheld material prior art, *inter alia*, including the summary of the 1991 Moscow conference, REDACTED

and other publications from Dr. Mirzabekov's group from the United States Patent and Trademark Office during the prosecution of the patent application that led to the '716 patent. This failure to cite material prior art to the United States Patent and Trademark Office was undertaken with an intent to deceive the Patent Office.

**Count III**

**Declaratory Judgment of Non-Infringement, Invalidity, and Unenforceability of  
U.S. Patent No. 6,355,432**

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25. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

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26. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,355,432 (the "'432 patent") is invalid, unenforceable, and not infringed by Illumina.

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27. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the '432 patent, and whether the '432 patent is invalid.

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28. Illumina does not infringe, and has never infringed, any valid claim of the '432 patent either directly, contributorily, or by inducement.

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29. The '432 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

30. The '432 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

31. More particularly, Affymetrix and one or more of the inventors and prosecution counsel of the '432 patent knew of the prior art work of Radoje Drmanac and Radomir Crkvenjakov relating to use of encoded beads used for hybridization experiments, the subject matter of the '432 patent claims. Drs. Drmanac and Crkvenjakov presented their encoded bead invention at several conferences in the United States, starting in the fall of 1989, and published several posters and descriptions relating to this work. Upon information and belief, Dr. Fodor and/or others associated with Affymetrix (or its predecessor-in-interest, Affymax) attended these conferences at which Drs. Drmanac and Crkvenjakov presented, and learned of their prior art work through these presentations. Dr. Fodor and his co-inventors on the '432 patent did not include any written description relating to encoded beads in a patent application until after hearing Drs. Drmanac and Crkvenjakov present on this topic.

32. Affymetrix and Dr. Fodor did not disclose this prior art to the United States Patent and Trademark Office or that they derived the invention claimed in the '432 patent from Drs. Drmanac and Crkvenjakov. This failure to cite material prior art to the United States Patent and Trademark Office was undertaken with an intent to deceive.

33. The '432 patent is also unenforceable because Affymetrix failed to disclose material documents arising from litigations involving similar subject matter in connection with the prosecution of the application that issued as the '432 patent. More

particularly, the subject matter of the '432 patent was involved in the litigations concerning the '305, '934, and '992 patents; and therefore, the discovery, pleadings, and judicial orders arising from these litigations were material to the patentability of the '432 patent. The applicants for the '432 patent were aware that the discovery, pleadings, and judicial orders arising from the litigations involving the '305, '934, and '992 patents were material to the patentability of the '432 patent, and yet intentionally failed to disclose to the United States Patent and Trademark Office the material discovery, pleadings, and judicial orders arising from these litigations.

#### **Count IV**

#### **Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of U.S. Patent No. 6,399,365**

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34. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

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35. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,399,365 (the "'365 patent") is invalid and not infringed by Illumina.

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36. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the '365 patent, and whether the '365 patent is invalid.

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37. Illumina does not infringe, and has never infringed, any valid claim of the '365 patent either directly, contributorily, or by inducement.

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38. The '365 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

39. The '365 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

40. More particularly, Affymetrix and its patent counsel had knowledge of, *inter alia*, United Kingdom Patent Application GB 2129551A, which published on May 16, 1984, more than one year before the earliest filing date of the '365 patent and is prior art to the claims of the '365 patent. Specifically, the Mochida '551 patent was cited to Affymetrix during prosecution of United States Patent Application No. 09/585,659, in an office action dated April 6, 2001. It was specifically noted by the Patent Examiner in this April 2001 office action that the Mochida patent taught the use of bar codes in the context of microtiter plates or other biological sample holders.

41. Affymetrix acknowledged its knowledge of the Mochida patent and the use of bar codes in the prior art in an Amendment of the '659 patent application dated September 17, 2001. In this Amendment, Affymetrix stated "Examiner mentions that bar codes and nucleic acids were known in the art to be encoding systems and applicants agree."

42. Affymetrix and the inventors of the '365 patent did not disclose the Mochida patent to the United States Patent and Trademark Office during the prosecution that led to the '365 patent. Furthermore, the Patent Office was not informed during prosecution that Affymetrix believed "bar codes and nucleic acids were known in the art" before the earliest filing date of the '659 patent application, which predates by several years the earliest filing date of the '365 patent.

43. The claims of the '365 patent were issued on January 26, 2002, after Affymetrix became aware of the Mochida patent and its relevance. In the Examiner's Statement of Reasons for Allowance of the claims of the '365 patent, he noted that "there is no prior art that teach or suggest a package for hybridization comprising an optically transparent chip comprising an array of probes comprising biological polymers immobilized on surface with a housing and a

bar code.” The Mochida patent expressly teaches all of these elements. The Examiner went on to explain that “[t]he closest prior art is Merkh et al (US 5,281,540) who teach a biological sample analyzer for analyzing a reaction cartridge that has a bar code but they do not teach or suggest a probe array with density exceeding 100 different biopolymers per cm<sup>2</sup> nor an optically transparent chip.” The Mochida patent is closer to the claims of the ‘365 patent than this cited Merkh patent; indeed, the Mochida patent invalidates the ‘365 patent claims.

44. Affymetrix and the inventors of the ‘365 patent withheld the Mochida patent and their knowledge of the prior art use of bar codes on microtiter plates and biological sample holders from the United States Patent and Trademark Office with an intent to deceive.

**Count V**  
**Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of**  
**U.S. Patent No. 6,607,887**

45. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 and 14-24 as if fully set forth herein.

46. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,607,887 (the “‘887 patent”) is invalid and not infringed by Illumina.

47. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the ‘887 patent, and whether the ‘887 patent is invalid.

48. Illumina does not infringe, and has never infringed, any valid claim of the ‘887 patent either directly, contributorily, or by inducement.

49. The ‘887 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

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50. The '887 patent is unenforceable because Affymetrix failed to disclose prior art and material documents arising from litigations involving similar subject matter in connection with the prosecution of the application that issued as the '887 patent.

51. More particularly, the subject matter of the '887 patent was involved in litigation concerning the '716 patent; and therefore, the discovery, pleadings, and judicial orders arising from such litigation were material to the patentability of the '887 patent.

52. The applicants for the '887 patent were aware that the discovery, pleadings, and judicial orders arising from litigation involving the '716 patent were material to the patentability of the '887 patent, and yet intentionally failed to disclose to the United States Patent and Trademark Office the material discovery, pleadings, and judicial orders arising from such litigation.

53. The applicants for the '887 patent failed to disclose to the United States Patent Office that the '716 patent was ever involved in a litigation in connection with the prosecution of the application that issued as the '887 patent.

#### **Count VI**

#### **Declaratory Judgment of Non-Infringement, Invalidity and Unenforceability of U.S. Patent No. 6,646,243**

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54. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.

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55. An actual controversy exists between Illumina and Affymetrix as to whether U.S. Patent No. 6,646,243 (the "'243 patent") is invalid and not infringed by Illumina.

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56. A judicial declaration is necessary and appropriate so that Illumina may ascertain its rights as to whether it infringes the '243 patent, and whether the '243 patent is invalid.

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57. Illumina does not infringe, and has never infringed, any valid claim of the '243 patent either directly, contributorily, or by inducement.

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58. The '243 patent is invalid for failure to meet the requirements of the Patent Laws of the United States, including particularly one or more of the 35 U.S.C. §§ 102, 103, and/or 112.

59. The '243 patent is unenforceable because Affymetrix withheld material prior art from the United States Patent and Trademark Office with an intent to deceive.

60. More particularly, Affymetrix and one or more of the inventors of the '243 patent had knowledge of the prior work of Radoje Drmanac and Radomir Crkvenjakov relating to use of a "sequencing chip" using a plurality of beads attached to a substrate to run hybridization experiments, the subject matter of the '243 patent claims. Drs. Drmanac and Crkvenjakov presented their sequencing chip invention at several conferences in the United States, starting in the fall of 1989, and published abstracts and posters. Upon information and belief, Dr. Fodor and/or others associated with Affymetrix (or its predecessor-in-interest, Affymax) attended these conferences at which Drs. Drmanac and Crkvenjakov presented, and learned of the sequencing chip invention through these presentations. Dr. Fodor and his co-inventors on the '243 patent only included disclosure relating to encoded beads in a patent application after learning of Drs. Drmanac and Crkvenjakov work in this area.

61. Affymetrix and Dr. Fodor did not disclose to the United States Patent Office that they derived the invention claimed in the '243 patent from Drs. Drmanac and Crkvenjakov. This failure to cite material prior art to the United States Patent Office was undertaken with an intent to deceive the Patent Office.

62. The '243 patent is unenforceable because Affymetrix also failed to disclose to the United States Patent Office material documents arising from litigations involving similar subject matter as that claimed in the '243 patent.

63. More particularly, the applicants for the '243 patent failed to disclose to the United States Patent Office material documents, including discovery, pleadings, and judicial orders arising from litigations involving the '992, '934, and '305 patents, in connection with the prosecution of the application that issued as the '243 patent.

64. The subject matter of the '243 patent was involved in the litigations concerning the '305, '934, and '992 patents; and therefore, the discovery, pleadings, and judicial orders arising from these litigations were material to the patentability of the '243 patent.

65. The applicants for the '243 patent were aware that the discovery, pleadings, and judicial orders arising from the litigations involving the '305, '934, and '992 patents were material to the patentability of the '243 patent, and yet intentionally failed to disclose to the United States Patent Office the material discovery, pleadings, and judicial orders arising from these litigations.

66. The applicants for the '243 patent failed to disclose to the United States Patent Office that the '934 patent was ever involved in a litigation in connection with the prosecution of the application that issued as the '243 patent.

**Count VII**  
**Violation of Section 2 of Sherman Act,**

67. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-66 as if fully set forth herein.

68. Affymetrix has attempted to enforce the '531, '716, '432, '365, '887, and '243 patents against Illumina in this lawsuit.

**Deleted: Unfair Competition under Cal. Bus. & Prof. Code §§ 17200 et seq.**

**Deleted:** Illumina repeats and realleges the allegations in counterclaim paragraphs 1-5 as if fully set forth herein.¶ Illumina is engaged in the business of manufacturing and selling the Sentrix Array Matrix, the Sentrix BeadChip, assay reagents, and related instruments and software for researchers in the life sciences and pharmaceutical industries.¶ Affymetrix is engaged in the business of manufacturing and selling GeneChip arrays, assay reagents, and related instruments and software for pharmaceutical, biotechnology, agricultural, diagnostics and consumer products companies as well as academic, government and other non-profit research industries, in direct competition with Illumina.¶ On information and belief, Affymetrix has engaged in unlawful and unfair business acts or practices, including the misappropriation of Illumina's confidential technical and business information and the making of false and misleading statements to Illumina's customers and potential customers regarding Illumina's goods and services such as false statements that Illumina's products are inferior to Affymetrix's and will become technically obsolete in the near future.¶ As a direct and proximate cause of Affymetrix's unfair and unlawful business acts and practices alleged herein

69. Affymetrix obtained at least one claim of each of the '531, '716, '432, '365, '887, and '243 patents as a result of fraud committed against the United States Patent Office, as discussed in Counterclaim Counts I-VI above. The United States Patent and Trademark Office relied on the Affymetrix' inventors and agents to comply with their duty of candor, and the patents-in-suit would not have issued but for their failure to comply with this duty.

70.

**REDACTED**

71. All of these actions have helped Affymetrix attain and maintain a monopoly or near-monopoly share of the market for DNA microarray products that are sold, for example for genotyping and/or gene expression applications, in the United States and the world. Affymetrix' attempted enforcement of the patents against Illumina threatens to lessen competition and/or raise prices in the marketplace for DNA microarrays. As interpreted by Affymetrix, the patents-in-suit, individually or together, would give Affymetrix the power to exclude competition and raise prices in the DNA microarray market. Affymetrix has controlled and controls a vast majority of the DNA microarray market in the United States and the world, with a market share as high as REDACTED, such that its efforts to monopolize this market have succeeded and/or are dangerously close to success.

72. Affymetrix has maintained or attempted to maintain its monopoly power by exploiting barriers to entry and by engaging in anticompetitive conduct, all with a desire to eliminate Illumina and other competitors from the marketplace. For example, Affymetrix has

attempted to maintain its monopoly power through exclusionary and anticompetitive pricing practices

## **REDACTED**

Affymetrix has also attempted to maintain its monopoly power through means such as making false and misleading statements to customers in the DNA microarray market regarding Illumina and its products or services, and through entering into exclusionary arrangements with competitors of Illumina so as to ultimately reduce competition in the DNA microarray market.

73. Affymetrix has undertaken these actions with an intent to monopolize the DNA microarray market.

74. Illumina and the DNA microarray market have been damaged by Affymetrix' unlawful acts. Illumina has lost many sales and sales opportunities because of Affymetrix' assertion of its unenforceable patents in this lawsuit and willful maintenance of its monopoly power through exploitation of barriers to entry and exclusionary conduct.

### **Count VIII**

#### **Unfair Competition Under Cal. Bus. & Prof. Code §§ 17200 et. seq.**

75. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-74 as if fully set forth herein.

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76. Illumina is engaged in the business of manufacturing and selling the Sentrix Array Matrix, the Sentrix BeadChip, assay reagents, and related instruments and software for researchers in the life sciences and pharmaceutical industries.

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77. Affymetrix is engaged in the business of manufacturing and selling GeneChip arrays, assay reagents, and related instruments and software for pharmaceutical, biotechnology, agrichemical, diagnostics and consumer products companies as well as academic, government and other non-profit research industries, in direct competition with Illumina.

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78. On information and belief, Affymetrix has made false and misleading statements to Illumina's customers and potential customers regarding Illumina's goods and services, including false statements that Illumina's products are inferior to Affymetrix's and will become technically obsolete in the near future. Furthermore, for the reasons discussed in Paragraphs 67 to 74 above, Affymetrix has willfully and unlawfully maintained and/or attempted to maintain monopoly power in violation of Sec. §§ 17200 et. seq.

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79. As a direct and proximate cause of the conduct alleged in paragraph 78, Illumina has suffered, and will continue to suffer, monetary and irreparable damages, including injury to Illumina's good will and reputation in the marketplace. Illumina has no adequate remedy at law for the irreparable damage that they have suffered and continue to suffer as a result of Affymetrix' unlawful conduct.

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Deleted: false and misleading statements that Affymetrix has made to Illumina's customers and prospective customers in the promotion of its own goods and services

Deleted: from Affymetrix's false and misleading statements alleged herein.

80. Affymetrix's false and misleading statements and exclusionary conduct as alleged herein offend public policy as they are deceptive, unlawful, unfair, unscrupulous, and substantially injurious to Illumina and to its customers, and thus constitute unfair competition and unfair business practices in violation of the California Business & Professions Code §§ 17200 et seq. that prohibits unfair, unlawful and deceptive business acts.

Deleted: Affymetrix's unfair and unlawful business acts and practices

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81. Under California Business & Professions Code § 17202, Illumina is entitled to an order enjoining Affymetrix from making any false, misleading, defamatory, unfair or malicious statement pertaining to Illumina or its products and services and enjoining the exclusionary conduct alleged in paragraph 78 above.

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Deleted: §§ 17200 et seq.

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### **Count IX**

#### **Intentional Interference With Actual and Prospective Economic Advantage**

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82. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-81 as if fully set forth herein.

83. Illumina has had reasonable and valuable expectations of actual and prospective economic advantage through business relationships with both existing and potential customers.

84. On information and belief, Affymetrix is aware of the existence of those business relationships with existing and potential customers.

85. On information and belief, Affymetrix has engaged in efforts to interfere and disrupt Illumina's business relationships with those existing and potential customers.

### **REDACTED**

Affymetrix has also made false and misleading statements to existing or potential customers of Illumina in an effort to interfere with Illumina's relationships with these customers.

86. On information and belief, as a direct and proximate result of Affymetrix's conduct alleged herein, Illumina has been prevented from obtaining economic advantage through business relationships with existing and new customers that would have yielded substantial Illumina substantial profit.

87. On information and belief, Affymetrix acted knowingly, willfully and maliciously with the intent to injure Illumina, and therefore, Illumina is entitled to recover compensatory, exemplary and punitive damages.

#### **Count X -- Unclean Hands**

88. Illumina repeats and realleges the allegations in counterclaim paragraphs 1-87 as if fully set forth herein.

89. Based on Affymetrix' efforts to obtain patents through fraud, maintain these patents through the suppression of witnesses and documents that would prove the unenforceability and invalidity of these patents, and engage in deceptive dealing by, *inter alia*,

obtaining Illumina confidential information, Affymetrix has unclean hands and should not, in equity, be permitted to enforce its patents against Illumina.

WHEREFORE, Illumina prays for the entry of judgment as follows:

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A. Declaring that Illumina does not infringe, either directly, contributorily, or by inducement, the '531, '716, '432, '365, '887, and '243 patents;

B. Declaring that the claims of the '531, '716, '432, '365, '887, and '243 patents are invalid;

C. Declaring that the claims of the '531, '716, '432, '365, '887, and '243 patents are unenforceable;

D. Declaring that Affymetrix's claims are limited and/or barred by the doctrines of laches, prosecution laches and/or estoppel;

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E. Awarding Illumina its reasonable costs and attorneys fees pursuant to 28 U.S.C. § 285;

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F. Enjoining Affymetrix from making any further false, misleading, defamatory, unfair or malicious statements regarding Illumina or Illumina's goods and services;

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G. Granting Illumina an award of compensatory, exemplary, treble and punitive damages for Affymetrix's antitrust violations, unfair competition and tortious interference with contract; and

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H. Granting Illumina such other and further relief as justice and equity may require.

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**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Illumina hereby demands a trial by jury on all issues so triable.

Dated: January 7, 2006

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